

We Claim:

1. A process for manufacturing a toothbrush comprising:

5 a) providing a toothbrush mold having a head portion, a base portion, a toothbrush cavity located between said head portion and said base portion and having walls, an injection port for injecting molten plastic, and a gas injection port for injection at least one gas, wherein the gas injection port is positioned in the end of the base portion of the mold so that gas is injected into the mold cavity substantially centrally thereof and in a direction parallel to the longitudinal axis of the mold;

10 b) injecting a predetermined amount of a molten plastic into the mold cavity to partially fill the cavity; and

15 c) injecting said at least one gas through the gas injection port to direct the molten plastic into contact with the walls of the mold cavity.

20 2. The process of claim 1 wherein the injection port for the molten plastic is positioned near the base portion of the mold, perpendicular to the lengthwise direction of the toothbrush mold.

25 3. The process of claim 1 wherein the injection port for the molten plastic is positioned in the center of the end of the base portion of the mold.

4. The process of claim 1 wherein the molten plastic is selected from the group consisting of cellulose acetate propionate, nylon, polyethylene, polypropylene, polycarbonate, and poly(ethylene terephthalate) and mixtures thereof.

5. The process of claim 1 wherein the amount of molten plastic injected into the mold ranges from about 10% to about 90% of the total volume of the mold cavity.

6. The process of claim 1 wherein the amount of molten plastic injected into the mold ranges from about 20% to about 80% of the total volume of the mold cavity.

7. The process of claim 1 wherein the gas is selected from the group consisting of air, carbon dioxide, nitrogen, and mixtures thereof.

10 8. The process of claim 7 wherein the gas is injected at a pressure ranging from about 340 kPa to about 4000 kPa.

9. The process of claim 8 wherein the gas is injected at a pressure ranging from about 700 kPa to about 2800 kPa.

15 10. The process of claim 9 wherein the gas is injected at a pressure ranging from about 1375 kPa to about 2400 kPa.